MAL Section 6.4 – mechanistic and other evidence

There is strong evidence that malathion can operate through several key characteristics of human carcinogens and that these can be operative in humans. Specifically:

a) There is strong evidence that exposure to malathion-containing mixtures in humans results in genotoxicity. Various types of chromosomal damage have been found in these studies and in studies in animals and in human and animal cells in vitro. Bacterial mutagenesis assays were negative indicating no direct pro-mutagenic activity.

b) There is strong evidence that malathion can act via receptor-mediated mechanisms, pathways relevant to tumor findings in the hormone-responsive tissues, thyroid and the mammary gland. The strong evidence for cell proliferation response to malathion in these tissues is concordant to the activity via receptor-mediated effects key characteristic.

c) There is strong evidence that malathion can act to induce oxidative stress. The most extensive database is from in vivo studies in animals. In addition, data are available from in vitro studies in human cells and from one study of humans acutely poisoned with malathion-containing pesticide mixtures.